ferred to a dish of cold water or alcohol standing at the end of the embedding stage and into which it is immersed as soon as the paraffine is cooled sufficiently to prevent the breaking of the surface film by the water.

The use of this embedding stage makes unnecessary the use of the top of the paraffine bath for this purpose. Its use helps greatly in securing good embedding because it permits the paraffine to be melted clear to the bottom of the embedding tray and thus the orientation is made easy. The plan of allowing the object to lie on a layer of congealed paraffine is not only unnecessary but is faulty in that the paraffine is too soft to permit accurate orientation of the object and also because a cleavage plane is formed at which the paraffine frequently breaks during the sectioning. The stage is convenient to use, does away with the necessity of using gas, and largely obviates the danger of overheating the tissue which danger is always present when a gas flame is used for heating the ordinary stage. This stage because of its low construction is very stable, unlike the very insecure stage used with the gas flame, and with the levelling screws it may be levelled. In several months' use by a class no objectionable features have appeared and its good points are only the better appreciated.

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MAKING GLASS PLATES FOR COVERING MUSEUM JARS

At this time when it is impossible to secure from abroad the glass plates for covering museum jars it is worth while to know that after a little practise passable plates may be made in any laboratory equipped with power grinding and buffing machinery. Double strength glass plates may be purchased cut to size or they may be cut in the laboratory. Their edges may be rounded and a narrow ground surface at the margin may be secured by grinding on a carborundum wheel designated 120J-G5 which can be purchased from the Carborundum Co., Niagara Falls. The size of the wheel will depend somewhat on the power and speed of the grinder. In this laboratory a 4½ by ½ inch wheel belted to a ½ h. p. motor

of about 1800 R. P. M. is used. While plates made in this way are not as good as the imported article they are usable and cheap, and by this means museum jars whose covers have been broken may be put into use.

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THE POSSIBLE NATURE OF THE "BOOK LUNGS" OF SPIDERS

The abdomen of spiders is now unsegmented, and yet it is probable that spiders have descended from ancestors whose bodies were segmented throughout.

The breathing apparatus in spiders is varied, some forms showing some development of tracheal tubes. On the forward end of the abdomen are found two sacs, each of which encloses a folded membrane which exposes the blood to the air. These are the book lungs.

In the section of such a lung from an *Aglena* (Plate XX, Fig. 1) the membranous character of the organ will be seen. Red blood cells may be seen between the double membranes. The outer surface of the membrane is covered with short spines, which prevent the moist membranes from adhering.

It is possible that this arrangement is derived from an ancestral form which had external gills at this point, somewhat similar to the tracheal gill membranes of insect nymphs.

A figure of a section of the young wing membranes of an Ephemera nymph is shown (Pl. XX, Fig. 2) for comparison, The similarity of structure is striking.

E. W. ROBERTS.

NOTE ON THE NATURE OF THE CYTO-PLASTID

The cyto-plasm of a cell contains unit plastids which themselves bear a great resemblance to a complete cell with its nucleus and cyto-plasm.

Using the Tussock Moth egg for an illustration we get a suggestion of this condition. The egg is filled with nutritive material supplied by numerous nurse cells from their own cytosome system.